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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

ATTY. DOCKET NO.: AUS920000224US1

BOESNER ET AL.

EXAMINER: THOMAS H. STEVENS

SERIAL NO.: 09/751-802

FILED: DECEMBER 29, 2000

APT UNIT: 3123

## **FOR NAMING AND MANAGING SIMULATION MODEL EVENTS**

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**RESPONSE TO NOTIFICATION OF NON-COMPLIANT  
APPEAL BRIEF UNDER 37 C.F.R. 41.37**

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Sir:

This Appeal Brief is submitted in response to a Notification of Non-Compliant Appeal Brief mailed on September 26, 2005, for the Appeal Brief filed on August 3, 2005. No fee is required to file this Compliant Appeal Brief as the fee for filing the original Appeal Brief was paid at submission. However, should any fees be required to file this Compliant Appeal Brief, please charge that fee, as well as any additional required fees, to IBM Deposit Account No. 09-0447.

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*Typed or Printed Name: Michelle Sanderson Date: September 30, 2005 Signature:*

AUS920000224US1

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Serial No. 09/751,802

**REAL PARTY IN INTEREST**

The real party in interest in the present Application is International Business Machines Corporation, the Assignee of the present application as evidenced by the Assignment set forth at reel 011427, frame 0636 *et. seq.* of the USPTO assignment records.

**RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences known to Appellant, the Appellant's legal representative, or assignee, which directly affect or would be directly affected by or have a bearing on the Board's decision in the pending appeal.

**STATUS OF CLAIMS**

Claims 1, 2, 5, 6, 8-12, and 14-16 stand finally rejected by the Examiner, as noted in the Final Office Action dated May 3, 2005. The rejection of Claims 1, 2, 5, 6, 8-12, and 14-16 is appealed.

**STATUS OF AMENDMENTS**

Appellant's Amendment A filed on December 21, 2004 was entered by the Examiner as indicated in the Final Office Action. No amendment to the claims was proposed or entered subsequent to the Final Rejection dated May 3, 2005.

**SUMMARY OF THE CLAIMED SUBJECT MATTER**

Appellant's invention may be implemented as a method or a computer program product operable in a computer-aided design and verification system for naming simulation events tracked by instrumentation logic in a hardware description language (HDL) simulation model. The invention provides an extended event identifier data structure and method employing a naming convention that is particularly advantageous for preventing naming collisions between simulation events generated by "instrumentation entities" (i.e. HDL-type entities implemented using a specialized syntax and compilation process distinct from standard HDL design entities as described throughout the specification and used to monitor the actual logic design) while also enabling the events to be tracked in an individual, hierarchical manner (i.e. each and every

instance of event individually tracked), or global, non-hierarchical manner (i.e. all instances of event tracked as a whole unit without regard to specific instances).

The extended event identifier data structure includes a particular combination of naming fields that avoids naming collisions among the events that may otherwise occur in the hierarchical instantiation of instrumentation and design entities. The extended event identifier data structure includes an eventname field, an instrumentation entity field, a design entity field, and an instantiation identifier field. The eventname field names a simulation "event" (e.g. count, harvest, fail); the instrumentation entity field names the instrumentation entity that generates the event; the design entity field and instantiation identifier field, represent respectively, the design entity and hierarchical instance of the design entity in which the simulation event is generated.

Appellant's Claim 10 is directed to a method for naming and processing simulation events within an HDL simulation model that utilizes an extended event identifier data structure to name simulation events tracked by instrumentation entities within the model (Specification, page 70, lines 23-33, with reference to FIG. 10A). The extended event identifier data structure (FIGS. 10B-10D) is used to associate a combination of at least four distinct namespace fields with the simulation event in question. The four namespace fields contain, respectively, data specifying: an event namespace name (Specification, page 73, lines 6-8 and 15-18, and page 76, lines 1-5, with reference to FIGS. 10B-10D, describing an "eventname" field 1036), the instrumentation entity that generates the simulation event (Specification, page 73, lines 6-8 and 10-13, and page 76, lines 1-5, with reference to FIGS. 10B-10C, describing an "instrumentation entity name" field 1032), a design entity (Specification, page 73, lines 6-8 and 13-15, and page 76, lines 1-5, with reference to FIGS. 10B-10D, describing a "design entity name field" 1034), and the hierarchical instance of the specified design entity from which the simulation event is generated by the instrumentation entity (Specification, page 73, lines 6-8 and 13-15, and page 76, lines 1-11, with reference to FIGS. 10B-10D, describing an "instantiation identifier" field 1030). In the second step recited by method claim 10, the extended event identifier is utilized to evaluate occurrences of the simulation event in the simulation model (Specification, page 71, lines 11-33, with reference to FIG. 10A, describing simulation events (count events all having the same event namespace name "count1").

Appellant's Claim 1 is directed to a computer-readable medium having stored thereon an extended event identifier data structure for naming simulation events tracked by instrumentation entities within a simulation model of a compiled HDL digital circuit design (Specification, page 70, lines 23-33, with reference to FIG. 10A). The extended event identifier data structure (FIGS. 10B-10D) includes a combination of at least four distinct namespace fields containing, respectively, data specifying: an event namespace name (Specification, page 73, lines 6-8 and 15-18, and page 76, lines 1-5, with reference to FIGS. 10B-10D, describing an "eventname" field 1036), the instrumentation entity that generates the simulation event (Specification, page 73, lines 6-8 and 10-13, and page 76, lines 1-5, with reference to FIGS. 10B-10C, describing an "instrumentation entity name" field 1032), a design entity (Specification, page 73, lines 6-8 and 13-15, and page 76, lines 1-5, with reference to FIGS. 10B-10D, describing a "design entity name field" 1034), and the hierarchical instance of the specified design entity from which the simulation event is generated by the instrumentation entity (Specification, page 73, lines 6-8 and 13-15, and page 76, lines 1-11, with reference to FIGS. 10B-10D, describing an "instantiation identifier" field 1030).

**GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The Examiner's rejection of Claims 1, 2, 5, 6, 8-12, and 14-16 under 35 U.S.C. §102(e) as being anticipated by U.S. Pat. No. 6,202,042, issued to Bargh et al. (*Bargh* hereinafter), is to be reviewed on Appeal.

**ARGUMENT**

Since *Bargh* does not disclose each claimed feature of Claims 1 and 10, the rejection of Claims 1, 2, 5, 6, 8-12, and 14-16 under 35 U.S.C. §102(e) as being anticipated by *Bargh* is not well founded and should be reversed.

Regarding independent Claims 1 and 10, *Bargh* does not teach or suggest an extended event identifier data structure that includes, in part:

- an instrumentation entity field containing data representing an instrumentation entity that generates said simulation event;
- a design entity field containing data representing an entity name of a design entity; and
- an instantiation identifier field containing data specifying a hierarchical instance of said design entity in which said simulation event is generated by said instrumentation entity.

On page 4, lines 2-6, the Final Office Action erroneously asserts that at col. 7, lines 20-30, *Bargh* discloses an extended event identifier including an event name field containing data representing a simulation event and an instrumentation entity field containing data representing an instrumentation entity that generates said simulation event. Col. 7, lines 20-30 does not disclose any technique or structure for naming simulation *events* in any manner whatsoever. Instead, this passage provides a generalized description of design *entity* naming, explaining:

Design *entity* 300 is defined by a number of components: an entity name, entity ports, and a representation of the function performed by design entity 300. Each *entity* within a given model has a unique name, not explicitly shown in FIG. 3A, that is declared in the HDL description of each entity. (Emphasis added).

Appellants note that an event naming convention for naming simulation events is depicted by *Bargh* in FIG. 4C in association with counter declaration comments 455 (see counter declaration comments 455 containing events named event0, event1, and event2). While *Bargh* does inferentially disclose naming simulation events using a single event namespace, nothing in

*Bargh* discloses an extended event identifier that employs the aforementioned combination of four namespaces.

With continued reference to the grounds for rejecting Claim 1, page 4, lines 7-10, substantially mischaracterizes the “extended event identifier” as including an “instrumentation identifier field” and incorrectly asserts that col. 8, lines 29-31, col. 7, lines 20-30, and col. 4, lines 10-15, teach that any such field contains “data specifying a hierarchical instance of said design entity in which said simulation event is generated by said instrumentation entity.” Col. 4, lines 10-15 describes use of an HDL to generate an instrumentation entity, explaining, “[n]ext, an instrumentation entity designed to send a failure signal in response to detecting an occurrence of a failure event within the simulation executable model is described utilizing the same hardware description language.” As explained above, col. 7, lines 20-30, describes design entity naming convention as including an entity name, entity ports, and a representation of the function performed by the entity. Col. 8, lines 29-31, with reference to FIG. 3B, describes a “top-level entity 320” instantiated in a hierarchical manner (top-level) with respect to other HDL design entities 321a and 321b. It is manifestly clear that none of these references either individually or in combination disclose a data field that is used in an extended event identifier, and which contains “data specifying a hierarchical instance of said design entity in which said simulation event is generated by said instrumentation entity.”

The grounds for rejecting independent method Claim 10 are substantially the same as those used for Claim 1, and furthermore incorrectly asserts that at col. 14, lines 48-51, *Bargh* discloses “within an extended event identifier data structure: associating ... an instrumentation entity identifier ... with said simulation event.” In fact, col. 14, lines 48-51 describes the nature and function of “instrumentation entities,” explaining:

...instrumentation entity HDL source code files include a specialized comment section, hereinafter referred to as “instrumentation entity description”, in a particular form that indicate the target entity for the instrumentation entity, the signals within the target entity to be monitored, and information for the different types of events monitored.

This passage relates to description of instrumentation entities in an HDL source code file and includes no disclosure or suggestion of using instrumentation entity identifiers in an extended identifier used to identify simulation events.

In light of the preceding argument illuminating the failure of *Bargh* to disclose or suggest the foregoing claim element features, Appellants contend that independent Claims 1 and 10, and

Claims 2, 5, 6, 8-9, 11-12, and 14-16 depending therefrom, are not anticipated by *Bargh* and thus not rendered unpatentable.

**CONCLUSION**

Appellants have pointed out with specificity the erroneous grounds for rejecting the claims in the Final Office Action, and that the claim language that renders the invention patentable over the *Bargh* reference. Appellants, therefore, respectfully request that this case be remanded to the Examiner with instructions to issue a Notice of Allowance for all pending claims.

Respectfully submitted,



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CLAIMS APPENDIX

1. A computer-readable medium having stored thereon an extended event identifier data structure for use in a computer-aided design and verification system for naming simulation events tracked by instrumentation logic within a simulation model of a compiled digital circuit design that includes one or more design entities described utilizing a hardware description language, wherein said extended event identifier data structure comprises:
  - an eventname field containing data representing a simulation event;
  - an instrumentation entity field containing data representing an instrumentation entity that generates said simulation event;
  - a design entity field containing data representing an entity name of a design entity; and
  - an instantiation identifier field containing data specifying a hierarchical instance of said design entity in which said simulation event is generated by said instrumentation entity.
2. The computer-readable medium of claim 1, wherein said simulation event is a count event, a fail event, or a harvest event.
3. (Cancelled)
4. (Cancelled)
5. The computer-readable medium of claim 1, wherein said design entity field and said instrumentation entity field define a unique event namespace for each instrumentation entity associated with said design entity.
6. The computer-readable medium of claim 1, wherein said instrumentation entity field contains the name of an embedded instrumentation entity.
7. (Cancelled)

8. The computer-readable medium of claim 1, wherein said simulation event is defined in an instrumentation entity comment, and wherein said data within said eventname field includes the name assigned to said simulation event within said instrumentation entity comment.

9. The computer-readable medium of claim 1, wherein said design entity name is unique with respect to entity names of other design entities within said simulation model.

10. A method for naming and processing simulation events tracked by instrumentation logic within a simulation model of a compiled digital circuit design that includes one or more design entities described utilizing a hardware description language, said method comprising:

within an extended event identifier data structure:

associating an eventname, an instrumentation entity identifier, a design entity identifier, and an instantiation identifier with a simulation event, wherein said eventname represents a name of said simulation event, said instrumentation entity identifier represents an instrumentation entity that generates said simulation event, said design entity identifier is a design entity name specifying a design entity, and said instantiation identifier specifies a hierachal instance of said design entity in which said simulation event is generated by said instrumentation entity; and

evaluating occurrences of said simulation event within said simulation model in accordance with said extended event identifier.

11. The method of claim 10, wherein said design entity identifier includes a design entity name, and wherein said associating step further comprises encoding said design entity name within a hardware description language declaration of said simulation event.

12. The method of claim 11, wherein said instantiation identifier is a design entity instantiation identifier, and wherein said associating step further comprises encoding said design entity instantiation identifier within said hardware description language declaration of said simulation event.

13. (Cancelled)

14. The method of claim 10, wherein said instrumentation entity is instantiated within said design entity.

15. The method of claim 14, further comprising generating at least one instance of said design entity.

16. The method of claim 15, wherein said generating step further comprises generating an instrumentation instance data structure wherein said simulation event is declared.

**EVIDENCE APPENDIX**

Other than the Office Action(s) and reply(ies) already of record, no additional evidence has been entered by Appellants or the Examiner in the above-identified application which is relevant to this appeal.

**RELATED PROCEEDINGS APPENDIX**

There are no related proceedings as described by 37 C.F.R. §41.37(c)(1)(x) known to Appellants, Appellants' legal representative, or assignee.